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Division of Public Utilities

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## ACTION REQUEST RESPONSE

To: Public Service Commission

From: Division of Public Utilities  
Chris Parker, Director  
Energy Section  
Artie Powell, Manager  
Charles Peterson, Technical Consultant  
Abdinasir Abdulle, Technical Consultant  
Sam Liu, Utility Analyst

Date: September 10, 2013

Re: **Acknowledge Smart Grid Report with Condition**  
Docket No. 13-035-119 (08-999-05). Rocky Mountain Power's 2013 Smart Grid Monitoring Report.

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### RECOMMENDATIONS (Acknowledge with Condition)

The Division of Public Utilities ("Division") recommends that the Commission conditionally acknowledge Rocky Mountain Power's ("Company") 2013 Smart Grid Monitoring Report (Report) that was filed with the Commission on July 12, 2013. The Condition is that the Company file a supplement to its Report, that satisfies the Commission's November 30, 2011 Order in Docket 08-999-05 that required the "Company to explain the relationship between the analysis provided in the Financial Summary and the demand side resource performance standards approved by the Commission in Docket No. 09-035-27...." The Division also recommends that the Company include in its future reports some discussion about microgrids and other emerging technologies and trends.

## **ISSUE**

Pursuant to the Commission Orders in Docket 08-999-05 dated on December 17, 2009 and November 30, 2011, the Company filed its 2013 Smart Grid Monitoring Report (Report) on July 12, 2013. On July 16, 2013, the commission issued an Action Request for the Division to review the Report for compliance and make recommendations. The Commission asked the Division to report back by September 10, 2013. This memorandum is the Division's response to the Commission's Action Request.

## **REVIEW OF COMMISSION DIRECTION**

In its Order in Docket No. 08-999-05 dated December 17, 2009, the Commission directed the Company to monitor the development of smart grid technologies and to consider their implementation as technologies mature and cost effectiveness analyses demonstrate appropriate benefits to the Company and its customers. The Company was also directed to file an annual report that outlines the findings of this monitoring effort.

In its Order dated November 30, 2011 in Docket No. 08-999-05, the Commission directed the Company to include a discussion in the Report seven items:

1. All smart-grid related projects and activities the Company is actually engaged in throughout its system;
2. Smart grid-like activities the Company is either considering or has implemented which accrue some of the benefits of smart grid;
3. Upgrades or changes the Company is making relative to potential smart grid implementation and the related benefit-cost analyses;
4. Provide a list and description of smart grid pilot projects across the country being monitored by the Company;
5. Smart grid related activities and requirements in the Company's other jurisdictions;

6. The interaction of smart grid, rate structure, and customer behavior; and
7. Vehicle to grid applications. The Commission also directed the Company to file its annual report in July of each year.

The Commission also Ordered the Company to explain the relationship between the analysis provided in the Financial Summary and the demand side resource performance standards approved by the Commission in Docket No. 09-035-27...." In an e-mail to the Division on September 9, 2013, the Company acknowledged that it had not included this analysis in the report, but would provide this analysis in approximately two weeks.

Finally, in its November 28, 2012 correspondence to the Company, the Commission directed the Company to provide additional information regarding the dynamic line rating projects in its 2013 Smart Grid Monitoring Report.

## **DISCUSSION**

In compliance with Commission Orders, on July 12, 2013, the Company filed its 2013 Smart Grid Monitoring Report. The Division reviewed this Report in light of the above mentioned Commission Orders. The Division believes that the content of the Report complies with previous Commission direction.

The Company reviewed the interoperation of relevant technologies for transmission, substation and distribution systems, smart metering, and home area network and determined that the most critical infrastructure decision to be made during smart grid design is the communication network. However, as with previous reports, the Company focused its analysis and reporting on those technologies that are easily integrated with the system without major changes to the system. These technologies include advanced metering systems with demand response programs, distribution management systems, outage management systems, and transmission synchrophasors.

The Company also studied self-healing distribution system, distributed energy systems (including electric vehicles) and direct load control programs. However, the company did not include these technologies in its financial analysis.

In this report, the Company provided a detailed description of how these technologies that it has considered in its analysis and reporting satisfy the requirements of smart grid and the smart grid related projects that the Company has implemented in the past and present in the transmission, substation, and distribution environments, as well as demand side management investments. It also provided a detailed description of the smart grid projects that it has implemented in the past and present as well as those it is monitoring nationwide.

The Company was expected to provide an analysis that compared the Company's financial analysis with the demand side performance standards approved by the Commission. As indicated above, the Company did not include this analysis in this Report. However, the Company has indicated to the Division that it will provide this analysis in approximately two weeks.

Finally, as mentioned above, in compliance with the Commission direction in Docket 12-035-888, the Company provided status reports for the dynamic line rating projects addressed in this report confidential attachment B.

Using the best available data, the Company performed a high level benefit/cost analysis of the smart grid project. The results of this analysis show a negative present value for the implementation of a comprehensive smart grid system throughout PacifiCorp's territory at this time. Hence, under the current economic outlook of the smart grid, implementation of comprehensive smart grid system throughout PacifiCorp territory is cost prohibitive. However, the Company indicated that, for future improvement of the operation and management of transmission and distribution systems, some smart grid technologies show promise.

The Company's analysis has led to the development of a roadmap for implementing the smart grid throughout its service territory. This road map shows the progress required to reach a full smart grid by aligning the relative start dates for various system components of the smart grid. However, the Company indicated that there are a number of challenges

and risks associated with the deployment of a comprehensive smart grid system throughout its service territory. These challenges and risks include:

1. Risks associated with the lack of interoperability standards and cyber attacks against the electrical infrastructure.
2. Incompatibility of the current channel of communication with the use of real time data.
3. Customer recruitment to participate in selected smart grid related demand response programs.
4. Training call center personnel to effectively work with customers to take advantage of more detailed information on energy use and spending.
5. Handling of increased volume of data collected to support smart grid applications.

The Company indicated that it will continue to monitor activities throughout the country as more advanced technologies and smart grid related projects are developed.

The Division met with the Company to review the smart grid report on August 28, 2013. A representative of the Office of Consumer Services was also present. At this meeting, the Company explained that it believed that it would be two or three more years before there would be enough information from various smart grid pilot projects around the country in order for the Company would be able to decide which, if any, of these technologies would be beneficial to the Company and its customers.

The Division also discussed with the Company the idea that microgrids represented an up and coming technology that may impact the Company in unforeseen ways and suggested that the Company should start to monitor and briefly report on microgrid developments as part of its annual smart grid report. The Company representatives believed that microgrids and other emerging technologies were years, if not a decade or more, away from having a significant impact on Company operations. Nevertheless, the Division understands that promoters, at least, of these technologies believe that these technologies

are much closer on the horizon. The Division therefore recommends that the Company begin to monitor and briefly report on microgrid technologies and other emerging trends as part of its annual smart grid report.

## **CONCLUSION**

Based on the above discussion, the Division believes that, with one exception, the Report complies with the above Commission Orders. Therefore, the Division recommends that the Commission acknowledge the Company's 2013 Smart Grid Report following the Company adequately addressing the Commission's order to "explain the relationship between the analysis provided in the Financial Summary and the demand side resource performance standards approved by the Commission..." The Division also recommends that the Commission order the Company to begin to monitor and briefly report on microgrid technologies, as discussed above, in future smart grid reports.

CC: Dave Taylor, RMP  
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